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3M INNOVATIVE PROPERTIES COMPANY			EXAMINER	
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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/686,123

Filing Date: October 14, 2003

Appellant(s): SETH ET AL.

**MAILED**

**MAY 31 2007**

**GROUP 1700**

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William J. Bond  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 1/26/07 appealing from the Office action  
mailed 10/2/06

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

No amendment after final has been filed.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

2003/0049407	Kacher et al	3-2003
4,537,819	Schortmann et al	8-1985
3,638,270	Schlegel, Jr. et al	2-1972

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1, 3, 5-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kacher et al, PG Pub 2003/0049407 in view of Schortmann et al, U.S. Patent No. 4,537,819 and Schlegel, Jr. et al, U.S. Patent No. 3,638,270. Kacher et al discloses a disposable cleaning sheet which comprises protrusions having the claimed shape. See figures 7-13. The protrusions can be incorporated into cleaning sheets formed from nonwoven fabrics. See paragraphs 0043-0049. The protrusions can cover from 5-100 percent of the surface area, (paragraph 0060), and can have a height of 0.5-80 mm. See paragraph 0072-0084. The protrusions can be made from the claimed material, (see paragraph 0054). The protrusions can be formed integrally with sheets of material which corresponds to the claimed strands. See paragraph 0105. The strands comprising the integrally extruded protrusions can be affixed to a substrate. See paragraph 0112. The strands have a rectangular shape. See figure 1. The substrate can be a nonwoven fabric and can comprise a scrim. The nonwovens can comprise synthetic and natural fibers and comprise carded nonwovens. The nonwoven substrate can have a basis weight of 15-195 grams per square meter. Additives can be added to the nonwoven to enhance the hydrophobicity or hydrophilicity of the nonwoven. See paragraphs 0043-0049. Kacher differs from the claimed invention because Kacher does not teach that the cleaning elements comprising the strips with the protrusions should be embedded in the nonwoven. Schortmann et al discloses an insert which comprises a plurality of protrusions which is embedded in a nonwoven fabric. The

fabric can be formed from either natural or synthetic fibers, and may comprise carded fibers which would not include additional bonding means. The fabric can have the claimed basis weight. See col. 3, line 35 – col. 4, line 48. Schortmann et al teaches that it is advantageous to embed a protrusion supplying material into a nonwoven fabric so that the more abrasive aspects of the protrusions are present on the surface but at the same time the softness and absorbency of the nonwoven fabric is also present. See col. 3, lines 15-34. Therefore, one of ordinary skill in the art would have been motivated to embed the protrusion supplying strips of Kacher into the nonwoven fabric by the teaching of Schortmann that this configuration provides the best cleaning and absorbing material.

Kacher also differs from the claimed invention because while Kacher teaches that strips can be applied to the nonwoven in a variety of configurations, Kacher does not explicitly teach intersecting the strands. However, note that Kacher discloses that the orientation of the strips and the protrusions is directly related to the cleaning ability of the sheet. See paragraph 0115. Schlegel, Jr. et al teaches that cleaning elements which comprise protruding cleaning elements can be formed so that they are disposed in an intersection configuration. See figures. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have disposed the strands in an intersecting configuration. One of ordinary skill in the art would have been motivated to employ an intersecting configuration because Kacher teaches that the orientation of the strips and protrusions is directly related to the cleaning ability and therefore, Kacher teaches that the orientation of the strips and protrusions is a result effective variable and it therefore

would have been obvious to one of ordinary skill in the art to have selected the optimum orientation of the strips through the process of routine experimentation which resulted in the desired cleaning ability. Further, Schlegel, Jr. teaches that the substrate from which cleaning elements protrude can be configured in a woven or crosslaid configuration. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed a cross laid or intersecting configuration of the strands, motivated by the teaching of Schlegel, JR., that such a configuration was known in the art as suitable for forming the layer of strands from which projecting cleaning elements protrude.

#### **(10) Response to Argument**

Appellant argues that Schortmann teaches a continuous foam which is hydroentangled with a nonwoven web but that Schortmann does not teach the claimed protrusion containing backing element or embedding the claimed protrusion containing backing element in a fibrous web to form a cleaning sheet. However, initially, it is noted that the instant rejection has not and does not assert that Schortmann teaches the particularly claimed backing element comprising the strands having the protrusions integrally formed thereon. Instead, the rejection notes that the Kacher references teaches the particularly claimed backing element comprising the strands with the integrally formed protrusion in combination with a nonwoven fabric and differs from the claimed invention only in that it does not teach that the strands of the backing element are intersecting and does not teach embedding the backing element within the nonwoven web. Schortmann teaches that in forming a cleaning sheet which comprises both protrusions

and a nonwoven fabric, that it is beneficial to hydroentangle the two components so that the protrusion containing element is embedded within the nonwoven. Schortmann teaches that by hydroentangling and thus embedding the protrusion containing element within the nonwoven so that the fibers of the nonwoven are present on the same surface and in between the protrusions, a cleaning implement which has both cleaning and scrubbing capabilities due to the protrusions as well as wiping and absorbent properties due to the nonwoven at a single face of the cleaning implement. See col. 2, lines 13-43. Therefore, Schortmann teaches using hydroentangling to combine a cleaning element having protrusions with a nonwoven fabric in order to produce a cleaning implement having a cleaning surface which is able to scrub due to the protrusions, but which is also soft, not scratching, and absorbent.

Appellant argues that Kacher et al teaches discrete discontinuous hook stripes adhesively bonded to a substrate which is, among other things a mitt. However, initially, it is noted that Kacher clearly and unambiguously teaches that the substrate is preferably a nonwoven fabric. See paragraphs 0044 and 0045. Kacher mentions that the finished product can be formed into cleaning mitts, but the reference clearly teaches that the substrate per se is preferably a nonwoven fabric. Further, it is noted that the instant claims do not require that the strands, which are recited as being intersecting be bonded or otherwise connected to each other, and therefore the claimed strands are also discrete. Finally, the instant claims do not preclude adhesive attachment of the strands and the nonwoven substrate.

Appellant argues that Kacher does not teach that the protrusion containing strand elements are intersecting. This is correct, as acknowledged in the art rejection of record. However, Kacher does teach that the orientation of the strips and the protrusions is directly related to the cleaning ability of the sheet. See paragraph 0115. Therefore, Kacher is teaching that the orientation of the strands is a result effective variable and therefore the person of ordinary skill in the art would have been able to optimize the orientation of the strands in order to form a cleaning sheet which had the desired cleaning ability. Further, Schlegel, Jr. teaches a cleaning element comprising a plurality of strands having a plurality of protrusions extending from the strands wherein the strands are disposed in an intersecting manner, (i.e., the strands are woven together), and therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed a cross laid or intersecting configuration of the strands, motivated by the teaching of Schlegel, JR., that such a configuration was known in the art as suitable for forming the layer of strands from which projecting cleaning elements protrude.

Appellant argues that Kacher adhesively attaches the strands to the substrate and fails to teach embedding the protrusion containing backing element into the nonwoven substrate. However, as set forth above, the instant claims do not preclude adhesive bonding of the strands to the substrate. Further, with regard to embedding the protrusion containing backing element into the nonwoven substrate, as set forth in the art rejection, while it is true Kacher does not teach this feature, Schortmann does teach embedding a protrusion containing element into a nonwoven substrate in order to form

a cleaning implement which has both scrubbing and wiping/absorbing capabilities on a single surface of the cleaning implement.

Appellant argues that the rejection appears to be that Schortmann teaches the hydroentangling process is an accepted alternative to adhesive attachment and if one were to use the hydroentangling process to attach Kacher's discrete hook strips to the nonwoven that the claimed invention would be arrived at. However, the rejection does not state that hydroentangling would be used instead of any adhesive bonding of the strips in place, but would instead be used to displace the fibers of the nonwoven so as to embed the protrusion containing strands into the nonwoven as taught by Schortmann so that a single face of the implement would have both the protrusions as well as the fibers of the nonwoven in order to impart the dual functionality of scrubbing and wiping/absorbing to the single face of the cleaning implement.

Applicant argues that hydroentangling is a violent chaotic process used to take fibers and jumble them together so as to take an otherwise weak web and give it strength and that in certain unique circumstances such as in Schortmann the hydroentanglement process can also be used to join two webs together, but that hydroentanglement is not at all a universal method of attachment such as is adhesive bonding. However, it is noted that rejection does not state that the hydroentanglement should be used to bond the strips rather than adhesive bonding, but instead points to the teaching of Schortmann that hydroentangling can be used to combine a nonwoven substrate with a protrusion containing element in order to arrive a cleaning implement which has both scrubbing capability and absorbing/wiping capability on a single face by

embedding the protrusions within the nonwoven sheet by displacing the fibers of the nonwoven.

Appellant argues that hydroentangling is a high energy physical redistribution of fibers and that attempting to hydroentangling the combined discrete strands and nonwoven substrate of Kacher would result in chaos. However, it is noted that the instant invention is made by hydroentangling the protrusion containing strands and a nonwoven substrate. Further, it is noted that while the independent claim does recite that the strands are intersecting, this does not require that the strands be bonded to each other or otherwise connected. For example two sets of strands, one extending in the machine direction in one place and one extending in the cross direction in another plane are intersecting, but are not bonded, connected or particularly dimensionally stable. Thus, while Appellant describes the strands as being dimensionally stable, the strands themselves are still discrete and not recited as being bonded or otherwise connected to each other, or in any way more dimensionally stable than the strands of Kacher. Therefore, it is not clear how the argument can be made that hydroentangling the structure of Kacher would destroy it when this is the same method which is used to form the instant cleaning implement.

With regard to Schlegel, Appellant argues that it is not clear how this reference related to the proposed combination of Kacher and Schortmann. However, Schlegel, Jar is relied on to show that elements which comprise strands having protrusions extending therefrom can be disposed in intersecting configurations.

Appellant also argues that there would also be no reason to attach a second nonwoven to the Kacher product on the side from which the protrusions extend because the likely effect would be to mask the projections of the hook strips and destroy the functionality of the Kacher product. However, as long as the nonwoven was sized so that the protrusions extended through the nonwoven and ended at the surface of the nonwoven the functionality of the Kacher product would not be destroyed. Appellant argues that there is no motivation or reason to have the protrusions embedded within the nonwoven other than looking for an unsupported path to Applicant's invention. However, the motivation or reason is found in the Schortmann reference which clearly teaches the desirability of having a surface of a cleaning implement which had both protrusions for scrubbing as well as nonwoven fibers for wiping and absorbing.

Appellant also argues that there is no motivation to have the fibers of the nonwoven be present at the surface with the protrusions since the properties of scrubbing and absorbing/wiping are already present in the structure of Kacher due to the presence of spaces between the protrusion containing strands. However, just because there are spaces between the strands does not mean that the fibers of the nonwoven substrate of Kacher are present at the face of the cleaning implement formed by the tops of the protrusions and thus the desired combination of scrubbing and wiping/absorbing properties would not be found in the Kacher reference alone.

Appellant argues that there is nothing in the record to suggest the combination and that the combination if made would destroy the functionality of Kacher. However, the motivation to make the combination of references is found in the references

Art Unit: 1762

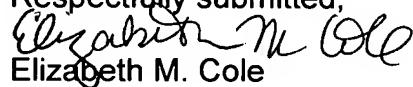
themselves as set forth above. Further, the hydroentangling entangling process which Appellant argues would destroy the structure of Kacher is the same process which is used to make the claimed invention.

**(11) Related Proceeding(s) Appendix**

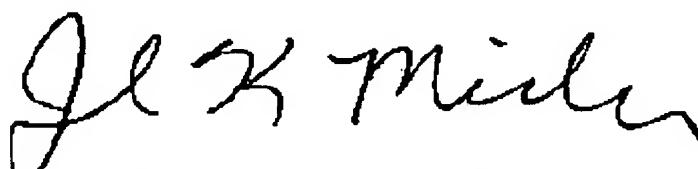
No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

  
Elizabeth M. Cole

Conferees:



**JENNIFER MICHENER  
QUALITY ASSURANCE SPECIALIST**

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